

## ABSTRACT

A multiple-trench photosensor for use in a CMOS imager having an improved charge capacity. The multi-trench photosensor may be either a photogate or  
5 photodiode structure. The multi-trench photosensor provides the photosensitive element with an increased surface area compared to a flat photosensor occupying a comparable area on a substrate. The multi-trench photosensor also exhibits a higher charge capacity, improved dynamic range, and a better signal-to-noise ratio. Also disclosed are processes for forming the multi-trench photosensor.